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Janet Campbell, Editor

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COMPUTERNEWS

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BACK TO MVT

After four weeks of running the VS2 Release 2 operating system on the S/370-165-II we are back with MVT once again.

VS2 Release 2 came up on December 30 under a light load. The system lacked a few of the special features which we had with MVT but they were being added quickly. An assortment of seemingly unrelated problems turned out to be the result of a clerical error which caused the paging datasets to be scratched, unknown to the system. After solving this initial reliability problem the system behaved as we expected: it was easy to operate, it had the functions it was supposed to have and the reliability was good.

However as the load increased during the week of January 6th we became aware of severe performance problems. High Speed Job Stream jobs were often taking 10 to 20 minutes (instead of 1 to 2 minutes) between reading and printing. General Purpose (Batch) turnaround time was up sharply from what should be expected for the number of jobs processed.

Our hardware monitoring equipment indicated that although the CPU was busy almost 100% of the time (as we expected it would be), the machine was in supervisor state (as opposed to problem program state) 80-90% of the time (which we did not expect: it was 40 to 50% under MVT). A further related observation was that the machine was executing only about 1.7 million instructions per second (MIPS) compared to about 2.5 MIPS under MVT. This slowdown seemed to be attributable entirely to a reduction in the "hit ratio" on the 16 kilobyte high speed memory buffer ("cache memory"), but what caused that is not yet clear.

Although we were able to improve the High Speed Job Stream performance somewhat and we had determined that we could improve Batch performance by eliminating or severely restricting TSO, we and the local IBM people decided by midweek that higher powered help was needed. We received a long list of suggested changes from the IBM System Development Division which we applied over the weekend but we began the week of January 13th still looking for the key.

At midweek more help arrived from IBM and on the weekend still more, and although the results were encouraging it was clear that we couldn't hold out any longer. We began the one week fallback to MVT. In the meantime some effort continued on VS2 Release 2 but with only limited results. On January 25th we were back on MVT.

One of the unfortunate things about this episode has been the simultaneous change in operating system, change in charging formula, the increase in overall rates and the increase in the service factor for the lowest priority service. The resulting effect on job costs has been a source of concern to many users. Two of the factors which we had not anticipated were the slowing down of the CPU,

cont'd...

BACK TO MVT Cont'd.

resulting in increased CPU times charged, and anomalies in the number of EXCP'S (roughly, I/O operations) charged to certain programs. Although these latter problems will not exist with MVT, we are continuing to investigate them. The changes in the overall rates and in the service factor for lowest priority service were applied to MVT before reinstallation.

We intend to continue analysing the problems we ran into with VS2 Release 2 and when improvements have been made we will probably test the system from time to time at night or on weekends. IBM is currently planning its effort in support of this activity. Obviously we will not put the system into production again until the problems we know about are solved to our satisfaction - certainly not this term, in any case.

Thanks for bearing with us.

John Wilson

ATTENTION ALL COMPUTERNEWS SUBSCRIBERS

With the first 1975 edition of COMPUTERNEWS, we are housecleaning our newsletter mailing list. All subscribers are asked to complete the COMPUTERNEWS ADDRESS FORM appearing as the back cover of this issue of COMPUTERNEWS. The form is pre-addressed and can be returned free-of-charge via campus mail.

In order to continue receiving COMPUTERNEWS, subscribers must complete and return the ADDRESS FORM before Friday, March 21, 1975. If the form is not returned, the subscriber's name will be dropped from the mailing list. Subscription changes will go into effect with the March 1975 issue of COMPUTERNEWS. Enquiries concerning COMPUTERNEWS subscriptions should be directed to June Bridges at 928-4990.

Janet Campbell

TRAVELS WITH CHUTE I
More Chess, Anyone?

In the last episode of the continuing saga of U. of T.'s chess playing program, we saw how CHUTE I, in its first ever tournament, fared reasonably well in the First Canadian Computer Chess tournament, placing third overall while drawing the top two programs. Since this first tournament in June 1974 at the University of Waterloo, several "improvements" were made to the basic program in preparation for the ACM's (Association for Computing Machinery's) fifth annual Computer Chess Championship in San Diego, California, in November of last year.

cont'd...

TRAVELS WITH CHUTE I Cont'd.

After the initial relative success in Waterloo, the author Mike Valenti, and his advisors, Professors E. S. Lee and Z. G. Vranesic (all of Electrical Engineering's Computer Group), headed down to San Diego with listings and chess boards under arm, and a slight twinge of hope for upsetting the four-time champion, Northwestern University's CHESS 4.0.

After suitably preparing ourselves physically and mentally, the twelve participants (10 American and 2 Canadian programs) sat down at their respective TELETERMinals for the first round of combat at the Sheraton Harbour Island hotel. We had some initial anxiety about establishing telephone data communication with the University of Toronto's S/370-165-II, across 2500 miles and countless U.S. phone companies, but no problems were encountered throughout the tournament's four rounds, with either communications or the U. of T. computer.

But alas, sports fans, the same cannot be said about CHUTE I's chess playing ability. It did, however, start off on the right foot by defeating XENARBOUR (a Greek-Latin conglomerate, meaning "strange tree", reflecting most chess playing programs' preoccupation with look-ahead game trees) in a rather unusual game, where a tedious middle game suddenly ended with a quick checkmate by CHUTE I (see list of game's moves below).

The aforementioned "improvements" eventually caught up with CHUTE I, and it consistently snatched defeat out of the very jaws of victory in the last three rounds. It carefully blended some brilliant moves (for computers, anyway) with well-timed gigantic blunders, in relentlessly pursuing its death wish.

It eventually finished somewhere near the bottom of the heap, but do not despair, fellow Canadians, as the only other Canadian entry, University of Waterloo's RIBBIT, combined excellent play and a little good luck, to win all of its four games, including the final round against CHESS 4.0, and won the tournament. The luck involved winning a game on a time fault by the opponent, TECH II, which had a mate in two on the 23rd move of the game, and failed to respond after 45 minutes elapsed time.

Some lessons are to be learned from CHUTE I's experience. Avoid last minute programming changes, and know all the implications of any changes you do make in a program. Good judgement comes from experience, and experience comes from bad judgement.

For more information on CHUTE I, contact Professors Z. G. Vranesic or E. S. Lee in the Dept. of Electrical Engineering's Computer Group.

cont'd...

TRAVELS WITH CHUTE I Cont'd.

The following two game listings show the program's only victory against XENARBOUR, and one of its more colourful defeats at the hands of OSTRICH, where it displayed both its brilliance and its capability to come up with turkey moves at the most inopportune times.

Algebraic chess notation is used, where the board is lettered left to right, A to H, and numbered bottom to top, 1 to 8, with white's pieces at the bottom. The full co-ordinates of the from and to-squares are given; namely, D2D4 means that the piece on D2 is moved to D4.

'*' = capturing move.
'+' = checking move.
'0-0' = king-side castling.
'0-0-0' = queen-side castling.
'EP' = en-passant pawn capture.
'=Q' = pawn to 8th rank becomes a queen.

Mike Valenti

CHUTE I vs. XENARBOUR

	CHUTE_I (white)	XENARBOUR
1	E2E4	C7C5
2	C2C4	B8C6
3	G1F3	E7E5
4	D2D3	G8F6
5	F1E2	F8E7
6	O-O	O-O
7	B2B3	D7D6
8	C1B2	C8E6
9	F3G5	E6D7
10	B1D2	H7H6
11	G5F3	D7E6
12	B2C3	D8B6
13	A1B1	B6A6
14	A2A4	A8C8
15	B1A1	B7B6
16	D1E1	F8D8
17	E1D1	D8F8
18	A1B1	F8D8
19	F1E1	D8F8
20	G1F1	F8D8
21	B3B4	A6B7
22	B4*C5	D6*C5
23	C3*E5	F6D7
24	E5C3	B7A6
25	C3B2	D8F8
26	B2C3	F8D8
27	E4E5	D8F8
28	D2F4	C8D8
29	B1C1	D8A8
30	D1C2	A8D8
31	E2D1	D8A8
32	E1E2	A8D8
33	C2D2	D8A8
34	F1E1	A8D8
35	D2E3	A6C8
36	E4D6	C8A8
37	E1D2	A7A5
38	E3E4	G7G6
39	E2E3	G8G7
40	C3B2	F7F5
41	E5*F6+FP	E7*F6
42	D3D4	E6G8
43	D1C2	D7B8
44	E4*G6+	G7H8
45	G6*H6+	G8H7
46	H6*H7+ CHECKMATE	

TL

CHUTE I VS. OSTRICH

	OSTRICH (WHITE)	CHUTE_I
1	D2D4	D7D5
2	E2E3	G8F6
3	G1F3	C8G4
4	B1C3	E7E6
5	C1D2	F8D6
6	F1D3	O-O
7	O-O	B8C6
8	C3B5	A7A6
9	B5*D6	D8B8
10	D6*B7	B8*B7
11	D2C3	A8B8
12	D1E2	B8A8
13	H2H3	G4H5
14	G2G4	H5G6
15	D3*G6	F7*G6
16	F3F5	C6*E5
17	D4*E5	F6E4
18	E2D3	F8E3
19	B2B4	A8F8
20	C3E1	F3*H3
21	C2C4	B7C6
22	C4*D5	C6*D5
23	D3*D5	E6*D5
24	A1D1	C7C6
25	D1C1	E4G5
26	F2F4	G5F3+
27	G1G2	H3H2+
28	G2*F3	F8C8
29	E5E6	H2*A2
30	E6E7	A2A3
31	C1*C6	C8E8
32	E1H4	D5D4
33	C6E6	G8F7
34	E6F4	D4D3
35	F4F5	G6*F5
36	G4*F5	A3A2
37	F1D1	A2A3
38	E4D4	E8B8
39	D4D8	B8*D8
40	E7*D8=Q	H7H6

game adjudicated in favour of white (OSTRICH).

MORE SHORT COURSES

The following non-credit short courses will be offered by the University of Toronto Computer Centre at the end of February and the beginning of March, 1975. A pre-addressed registration form is included as a supplement to this issue of COMPUTERNEWS and may be returned via campus mail free of charge.

Basic Utilities

Prerequisite: Introduction to Data Processing. A basic knowledge of JCL is advantageous.
Dates: Feb. 17, 18, 19, 20, 21
Time: 3 - 4 p.m.
Maximum # of Registrants: 30
Instructor: H. Kugel

The course will provide a survey of the basic utilities most often used to list datasets, to move and backup datasets, and to create and manipulate datasets. The course will be of interest to those people who are starting to use direct access devices for the storage of their data. The utilities surveyed will include the basic UTCC dataset allocation utilities and the IBM utilities associated with dataset usage.

The student will be able to create and use datasets on the system with these utilities and then manipulate those datasets. Access to the system will be provided through the course.

Introduction to MARK IV

Prerequisite: None
Dates: Feb. 17, 19, 21
Time: 4 - 6 p.m.
Maximum # of Registrants: 30
Instructor: J. Novak

MARK IV is a generalized file management system as opposed to a programming language. It is easily learned by non-programmers as well as programmers. The course will be a combination of lectures and seminars with an opportunity for the student to run MARK IV jobs. The student will:

1. Define a master file
2. Define transactions to update the file
3. Run a MARK IV processing job to both update the file with transactions and produce multiple reports.

The goal of this course is to provide the user with a rudimentary sampling of MARK IV so that he may determine whether he wishes to pursue the system in more depth.

Introduction to Job Control Language (JCL)

Prerequisite: Knowledge in and using a programming language.
Dates: Feb. 24, 26, 28
March 3, 4
Time: 3 - 4 p.m.
Maximum # of Registrants: 30
Instructor: B. Gillart

OR

Dates: Feb. 24, 25, 27
Time: 6 - 7:30 p.m.
Maximum # of Registrants: 30
Instructor: A. Love

cont'd...

MORE SHORT COURSES Cont'd.

Job Control Language is the programmer's means of giving instructions and information to the Operating System. Through JCL requests are made (e.g. memory allocation), information is given to the system (e.g. accounting class information), and datasets are manipulated. This course is intended to present the basic statements of JCL and explain their uses. The student will be expected to test his knowledge by using JCL to access and manipulate datasets placed on the system by the instructor.

Statistical Package for the Social Sciences (SPSS)

Prerequisite: Background in Social Science Statistics
Dates: Feb. 24, 26, 28
March 3, 4
Time: 4 - 5 p.m.
Maximum # of Registrants: 30
Instructor: M. Domoney

For Social Sciences users who are, or will be, using the computer to process their data. SPSS is an applications oriented programming language which contains powerful routines for the analysis of data while allowing the user to manipulate his data with simple FORTRAN-like statements.

COURSVAL -- Course Evaluations Using Mark Sense Cards

Prerequisite: None
Dates: March 10, 12
Time: 3 - 4 p.m.
Maximum # of Registrants: 30
Instructor: M. Tapia

During the past few years a greater emphasis has been placed on course evaluations, as a tool for improving the course content and providing positive feedback to the professor. This course is divided into two parts; the first will describe the current features of COURSEVAL -- a course evaluation package using cards marked by the student; the second will be devoted to a discussion of additional features which would be desirable.

REVIEW OF NEW OFFICE LOCATIONS

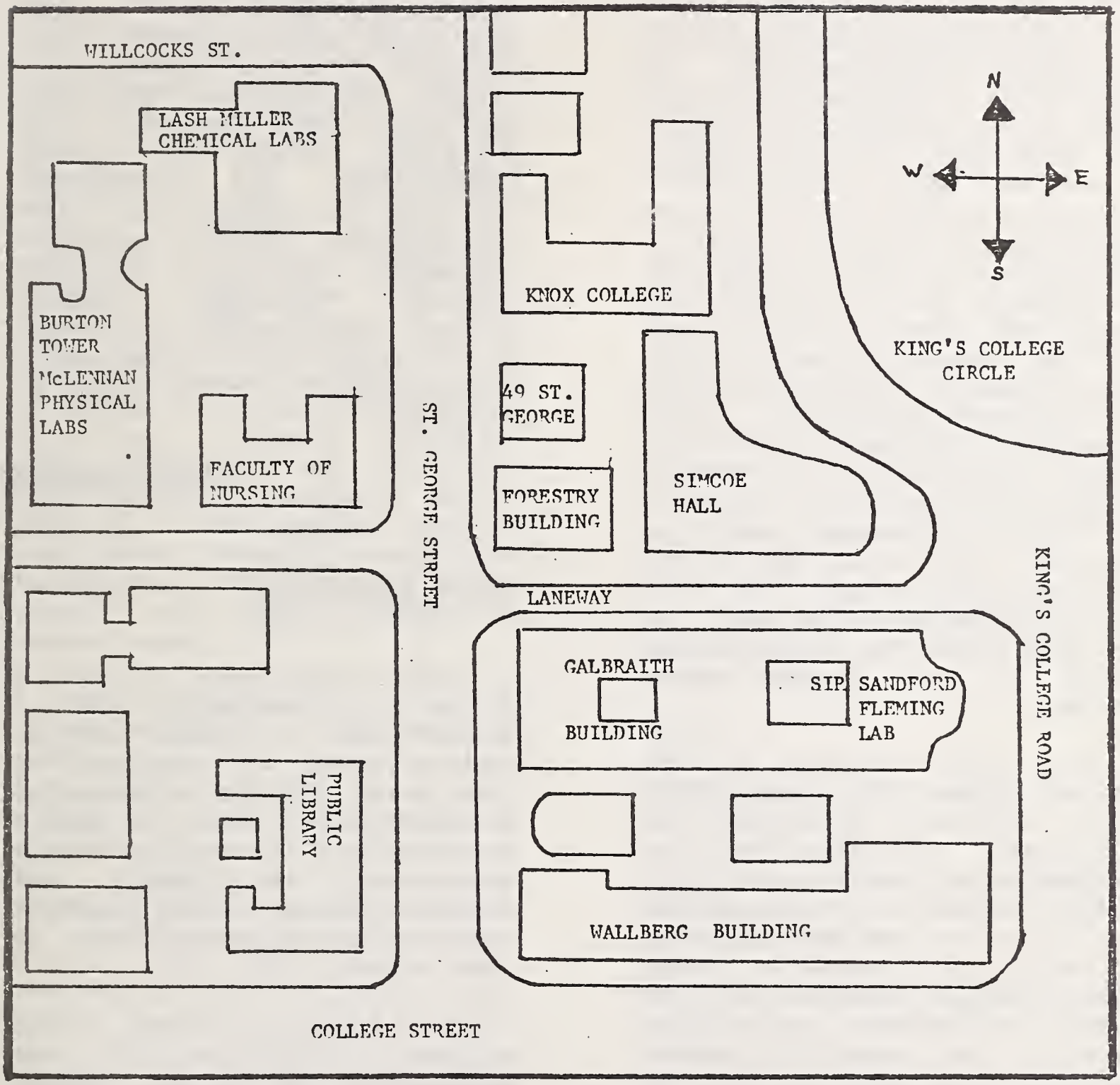
The following chart summarizes the new office locations for UTCC personnel.

NEW OFFICE LOCATIONS Cont'd.

Name	Old Office	New Office	Phone
Sue Annett	SG202	SF116	3787
Ruth Borenstein	SF143	SF125	6672
Don Brady	SF131	SF115	6317
Ford Clancy	SG304	SG301	6021
Ian Darwin	SF116	SG301	7318
Ashmeed Esack	SF131	SF114	6680
Kin Fong	SF116	SG304	4924
Bill Gillart	SF125	SG301	6355
Gord Grant	-	SF143	2162
Ruth Greer	SF114	SG204	6175
Marilyn Hall	SF113	SG202	3787(temp)
Dave Hart	SF104	SF115	6602
Al Heyworth	SG205	SF116	4936
Sean Keeley	SF114	SF131	6134
Herb Kugel	SF125	SG301	7286
John Lees	SF143	SF116	7130
Suzanne McCaffrey	SG301	SF143	2991
Jaime Menendez	SG304	SG203	6021
Len Prepas	SF116	SG303	8701
Bob Radcliffe	SF116	SF214A	5271(temp)
John Roth	SF116	SG304	5469
Dave Scobie	-	SG303	6496(temp)
Ran Talbott	SG204	SG203	6346
Mark Tapia	SF114	SF125	7109
Joyce Walton	NP1207	SG204	6343(temp)
John Wilson	SG303	SF143	6496
Stan Yagi	SF115	SG200	7331

Key
SF - Sandford Fleming Building
SG - 49 St. George Street
NP - New Physics - Burton Tower

Ruth Borenstein



OFFICE LOCATIONS OF MANY UTCC STAFF MEMBERS HAVE BEEN CHANGED. THE ABOVE MAP HAS BEEN ENCLOSED FOR THOSE USERS UNFAMILIAR WITH UTCC LOCATIONS.

SIDB IS COMING

Plans are being made to provide UTCC users with access to an interesting and unusual data base: the SIDB, or Satellite Information Data Base. SIDB is a compendium of information about all known spacecraft launches since the first one, Sputnik 1, in 1957. Due to be implemented in MARK IV, the SIDB will include such information as launch date, launch vehicle, launch site and sponsoring agency for every successful launch and for all publicly announced failures, orbit parameters, estimated lifetimes or rates of decay for all objects which have been tracked in orbit, and other information such as missions, sizes, shapes and weights of objects and payloads. The SIDB will be updated periodically to keep pace with the ever-changing status of the world's space programs.

We expect a good deal of interest in the SIDB, particularly from Aerospace, Astronomy, and Engineering. Since SIDB will be managed using MARK IV, users will be able to select the information they desire from the SIDB according to any of the categories noted above, using standard MARK IV Information Requests and Output Reports. For example, a user of the MARK IV/SIDB would be able to obtain a report of the names, dates of launch, and orbital parameters of all spacecrafts launched between January 1961 and June 1973, whose primary missions were solar research and whose launch vehicles were Thor Deltas.

The information in the SIDB has been accumulated since 1964 from numerous sources, of which the most substantial are the periodical NASA SATELLITE SITUATION REPORT, Royal Aircraft Establishment TABLE OF ARTIFICIAL EARTH SATELLITES, TRW SPACE LOG, AVIATION WEEK, FLIGHT INTERNATIONAL, and SPACEFLIGHT. The SIDB is probably the most comprehensive file of satellite information available excluding official government tracking reports. Users who are interested in the details of SIDB organization and usage are invited to call me at 928-6885.

George Olshevsky

STOLEN ACCESS CODES

UTCC investigates all reports of theft or unauthorized use of access codes or account numbers. Such incidents are regarded as theft, and when the violators can be identified, evidence is passed to University authorities so that appropriate disciplinary and recovery actions can be initiated either within the University or by court action.

Traditionally, UTCC has refunded the value of the unauthorized use to the account holder, provided that the account holder has secured his access code or account number by the use of a password, or (previously) by the use of a lock character on the alphabetic portion of the old style "authorization code". In recent months, the number of reported incidents of misuse has grown very rapidly. We have found during

cont'd...

STOLEN ACCESS CODES Cont'd.

these investigations that, in virtually all cases, the code has been readily obtainable by the thief because of user carelessness. It is extremely infrequent that access codes or account numbers have been obtained by the illegal reading of data stored within the computer. The overwhelming majority of codes or account numbers are obtained by taking job cards from box storage locations, picking up job cards from decks left lying around, retrieving cards from waste receptacles or by leaving account numbers and passwords on terminal output. Users have, in general, compounded this problem by not monitoring their accounts regularly to ensure that all their account usage is legitimate. Invariably when misuse is reported, the length of misuse extends back over a period of several weeks.

UTCC regrets that we can no longer underwrite the losses of users who suffer these losses by neglecting to maintain the security of their access codes or account numbers. In the future, requests for credit involving stolen accounts will not be granted except in cases where reasonable evidence exists that UTCC has been responsible for the loss - either through staff error in carrying out the security procedures involving manual transactions with user accounts or in cases when it is evident the thief obtained the account from the system by accessing machine-readable data.

UTCC will continue to investigate all reports of code or account theft, regardless of whether credit is granted or not. In the event that we are successful in the investigation and are able to retrieve the value of the loss or portions thereof, this money will be returned to the account holder (unless credit has previously been granted).

We sincerely regret having to make this policy change. It is the only way we have of impressing on users that their access code or account number is an extremely valuable piece of information and should be treated as such. If every user exercised the same care with his account as he did with his personal documents and credit cards, the losses by theft would be much lower!

Some DO's and DON'Ts for care and feeding of account numbers and access codes.

DON'T

DON'T leave job cards in card storage cabinets.

DON'T leave decks with job cards lying around in public batch terminal locations.

DON'T throw job cards in UTCC trash cans without thoroughly tearing them up first.

DON'T leave output on a 2741 terminal which could identify your account number and password.

cont'd...

STOLEN ACCESS CODES Cont'd.

DON'T supply your account code in the 3rd argument of CALL PLOTST if you are a S/370 Calcomp user. Any string of 7 characters or blanks will do. We obtain your code from the job card for charging purposes - not the PLOTST call.

DON'T lend your code to anyone else.

DO

DO change your password frequently regardless of what service you use.

DO watch your usage on job trailer pages - they are early indicators of possible theft.

DO report any suspected misuse of your code to UTCC as soon as you become suspicious.

DO destroy your used job cards at home or in your office if possible.

DO change your old style department code to a password at once if you are still using that type of "three-alphabetic-characters" string on a S/370-165-II access code.

DO use overdraft protection if at all convenient.

DO use multiple access codes on one account number rather than one access code distributed to a number of people.

Derry Cox

CHARGES FOR USERBOOK

In response to enquiries concerning the cost of the revised modular USERBOOK, the following summarizes the pricing policy for the UTCC USERBOOK.

-- There is no charge for subscribers converting from the old USERBOOK to the revised modular USERBOOK.

-- New USERBOOK subscribers will be billed $1.00 per copy of USERBOOK. This charge includes any number of sections or optional modules and entitles the subscriber to updates of material included in his copy of USERBOOK. A user may also at any time add new modules to his USERBOOK free of charge. This charge may be billed to the subscriber's C.A.N. with the permission of the C.A.N. holder.

-- A fee of $.25 per module or section will be charged for additional or replacement copies of material already included in the subscriber's copy of USERBOOK.

These charges do not represent the cost of producing USERBOOK. They are intended only to discourage carelessness -- or the use of USERBOOK for scrap paper!

Questions regarding charges for USERBOOK should be directed to the Information Office SF128, 928-4990 or 928-4991.

Don Gibson

SPECIAL PURPOSE PRINT TRAIN

UTCC is currently considering the acquisition of a special purpose print train that would allow the use of characters not presently available on the ALA and TN-5 print trains. The proposed print train would have all the characters now available (i.e. upper and lower case letters, digits, punctuation, accents required for most languages and transliterations, basic mathematical symbols, subscripts, superscripts and other special characters) as well as upper and lower case Greek letters and additional mathematical symbols. Other characters could also be made available, depending on demand. The print train would be available for use by S/370 batch, TSO and ATS users.

It should be noted that this proposed change may involve modification or removal of the ALA print train. Those presently using the ALA print train who feel that they would be affected by this change should contact:

R. Radcliffe
Room 214A
Sir Sandford Fleming Lab.

Bob Radcliffe

OS/MVT MANUALS STOCKED IN INFORMATION OFFICE

GC26-3746
Data Management Services

GC28-6550
Data Management for System Programmers

GC28-6538
Linkage Editor and Loader

GC28-6586
Utilities

GC28-6551
Storage Estimates

GC28-6646
Supervisor Services and Macro Instructions

GC28-6670
Programmers Guide to Debugging

GC28-6704
Job Control Language Reference

GC28-6631
Messages and Codes

GC28-6514
Assembler Language

GC26-3756
Assembler Programmers Guide

GX28-6781
TSO Command Language Summary Card

GC28-6732
TSO Command Language Reference

GC26-3794
Data Management Macro Instructions

cont'd...

OS/MVT MANUALS Cont'd.

Note: All IBM manuals in excess of five copies should be ordered through Marg Doherty, Information Office, SF128 (928-8995). Please allow eight weeks delivery time.

Marg Doherty

THE APPLICATIONS SUPPORT GROUP

The group called "Applications Support" is responsible for those areas of user aid which fall between the central site functions of providing basic host computing systems (CPU, memory, Operating System software) and the direct user-support functions of the Services group (terminal operations, program advisory services, publications and information dissemination).

The applications programmers in our group are responsible for upgrading and maintaining such existing software packages as the various language processors, (e.g. PL/I, Fortran) and applications packages and libraries, (e.g. IMS, SPSS, ATS) on all three computer systems. These same individuals are available as consultants to users solving related programming problems which are beyond the scope of the terminal advisors. They also share with the Marketing Services group the responsibility of evaluating any new applications packages which could expand our existing services to the University community. In addition, they are involved, from time to time, in developing customized software to fit a particular user's needs on a contract programming basis.

The DATATALK staff is also part of the Applications Support group, and in addition to providing the over-the-phone computing service which is their trademark, they serve as programming advisors for APL users and are involved in enhancements to the APL Public Libraries. They also serve as a telephone referral service for other advisors in the Applications Support Group.

The functions of data entry for all systems, and data control for the administrative computer system S/370/155, are the responsibility of another group within Applications Support.

Finally, for reasons more historical than computable, the operation of the 7094 system is a responsibility of Applications Support.

If you would like more information about any of the Applications Support group activities, please ask your local Terminal Co-ordinator for the appropriate telephone number(s) or leave a message for me at 928-6710.

Joyce Walton

MARKETING SERVICES

One of the new additions to UTCC resulting from the recent reorganization, is the Marketing Services group. UTCC is rather unique in that we are one of the few universities to have a distinct marketing function. We believe the Marketing Services group will enable UTCC to provide the best possible service for our customers.

cont'd...

MARKETING SERVICES Cont'd.

A list of objectives has been drawn up and is outlined below.

1. Maintain current users by a continuing series of visits, and possibly, recommendations for improvements on existing systems if appropriate.

2. Inform and advise the user community as to the services available and potential areas of application for the user.

3. Generate new customers in the immediate University community.

4. Expand the customer group to outside the immediate University community.

5. Provide central site or inner ring personnel with recommendations for, evaluation of, and potential usage of 'new products' or services.

6. Provide an interface between the customer and UTCC, and act as a barometer to measure the effectiveness of the Centre as viewed by our customers.

7. The Marketing Services group should act as the "customer coordinators". That is, all activity for any customer should be funneled through the appropriate Marketing Services representative to enable one central agency to coordinate and follow-up any implementation. This will provide our customers with a single point of reference for questions, problems, etc., and avoid the ambiguity and partial solutions that may be experienced now.

The group reports to Stan Yagi, Manager of Services, and consists of Dave Scobie (Supervisor), Ian Darwin, Ford Clancy, Bill Gillart, John Roth, and Herb Kugel.

The members of the Marketing Services group have accumulated a broad range of experience in all areas of the Computer Centre. We have first-hand experience in all our computers - the 165-II, 155-II, and the 65. We are experienced in Operations, Software Support, Systems Programming, Applications, User Services, IMS, APL, TSO, and many other areas. Where we lack first-hand knowledge of a product, we can interface with the appropriate group within UTCC.

In summary, we are prepared and equiped to deal with any and all of your problems. We are here to provide you with the best solution to your computing problems. Please call me (Dave Scobie - 928-6496(temporary)), Stan Yagi (928-7331), or any member of the Marketing Services team.

Dave Scobie

PERSONNEL CHANGES

Leaving the Centre this month are Teresa Chan of 7094, Jerry Rakowski of Operations, Bill Madryga of Systems, Erika Schmutz of Administration, Gilles Chalifour of Services, Lillian Lau and Lydia De Leon of Applications Support. Good luck in your new endeavours.

cont'd...

PERSONNEL CHANGES Cont'd.

On leave of absence for three months is Sam Goldfarb. Edith Kilany is on maternity leave and will return in May.

Joining us are Marjorie Guerin, Robert Price, Paul Scobie, Shirley Seto, Florence Jackman, Debra Mulgrew, David Mitchell and Bill Beesley. Marjorie is a programmer and Shirley is a data entry operator, both in the Applications Support area. Robert, Paul and David are computer operators for Operations. Debra is an accounting clerk for Administration. Bill is our new 7094 Supervisor and Florence is taking over Edith Kilany's duties as assistant to the Supervisor of 7094 until her return. Welcome aboard and hope you'll enjoy working with us.

Trudy Holland

RECENT ACQUISITIONS IN THE DEPARTMENT OF COMPUTER SCIENCE LIBRARY

Bacon, Michael D. & Bull, G.M.
Data Transmission.
London, Macdonald, 1973.

Brown, A.R. & Sampson, W.A.
Program Debugging: The Prevention and Cure of Program Errors.
London, Macdonald, 1973.

Chartrand, R.L.
Computers and Political Campaigning.
New York, Spartan Books, 1972.

Comtre Corporation.
Multiprocessors and Parallel Processing, ed. by P.H. Enslow, Jr.
New York, Wiley, 1974.

Halas, John, ed.
Computer Animation.
New York, Hastings House, 1974.

International Computing Symposium, Davos, Switzerland, Sept. 1973.
Proceedings, ed. by A Günther, B. Levrat & H. Lipps.
Amsterdam, North-Holland, 1974.

Ostrowski, Alexander M.
Solution of Equations in Euclidean and Banach Spaces. 3rd ed.
New York, Academic Press, 1973.

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Theory and Applications of Numerical Analysis.
London, Academic Press, 1973.

Riet, R.P. van de.
ABC ALGOL: A Portable Language for Formula Manipulation Systems.
Amsterdam, Mathematisch Centrum, 1973.
2 v. - Part 1: The Language
Part 2: The Compiler

Royal Irish Academy Conference on Numerical Analysis, Dublin, 1972.
Topics in Numerical Analysis, ed. by J.J.H. Miller.
London, Academic Press, 1973.

Smith, Brian T.
Matrix Eigensystem Routines - EISPACK guide, by B.T. Smith et al.
Berlin, Springer-Verlag, 1974.

Summer Computer Simulation Conference, Montreal, July 1973.
Proceedings.
La Jolla, Cal., Simulation Councils, Inc., 1973.
2 v.

Young, Tzay Y. & Calvert T.W.
Classification, Estimation and Pattern Recognition.
New York, American Elsevier, 1974.

MVT RATE SCHEDULE

Due to the fallback to OS/MVT, the old charging algorithm will again be in effect. MVT rates for jobs run on the S/370-165-II have been changed due to January 1st increases and appear below.

1. General Purpose Job Stream

a. CPU 1.25x$8.50=$10.60/min.
b. MEM 1.25x$1.05=$1.30/100 Kb. min.
c. UR

Cards read	$1.00/1000
Lines printed	$1.00/1000
Cards punched	$2.50/400

Cards and lines at the Policy Analysis Terminal is $1.20/1000

2. TSO

a. CPU 1.25x$8.50=$10.60/min.
b. MEM 1.25x$1.55=$1.95/100 Kb min.
c. Connect Time =$3.50/hour

3. MISC

Gould =$.25*SF/foot

4. Priority 4 Service Factor = .75

Rein Mikkor

NEW KEYPUNCHING PROCEDURE

A new procedure for submitting work to be keypunched has been instituted. Users can now submit their work at the Sandford Fleming Terminal (SF112) between 8:00 and 22:00 hours, Monday-Friday, and between 10:00 and 18:00 hours, Saturday and Sunday. Previously, this service was available between 9:00 and 17:00 hours, Monday-Friday.

Work to be keypunched should be legible and should either be coded on standard coding forms or furnished with complete coding instructions. Work must be accompanied by the signature of either the service access code holder or the owner of the computer account number. All access codes must be authorized for keypunching services. Keypunching rates are $5.00 per hour.

Users should allow a realistic period of time for their work to be completed. Users will be expected to present a claim stub at pick-up time.

Mark Tapia

HSJS MONTHLY STATISTICS

During the month of December, 1974, 111,107 jobs were processed compared with 109,128 for the previous year, an increase of 1.8%.

The following charts summarize the HSJS activity for the month of December. The graph represents the average number of jobs processed during each half hour period of the day.

Mark Tapia

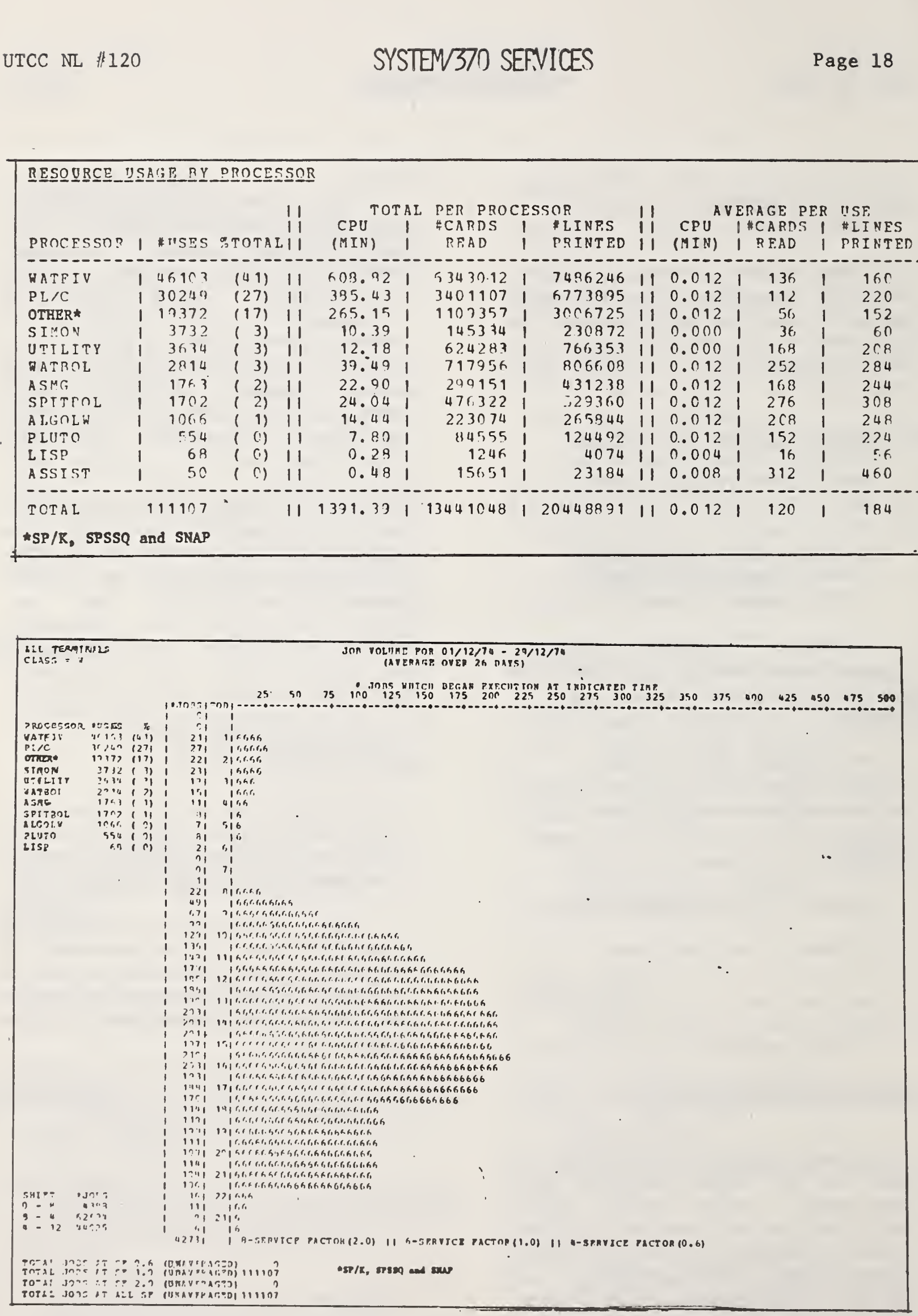
RESOURCE USAGE BY PROCESSOR

PROCESSOR	#USES	%TOTAL	TOTAL PER PROCESSOR CPU (MIN)	#CARDS READ	#LINES PRINTED	AVERAGE PER USE CPU (MIN)	#CARDS READ	#LINES PRINTED
WATFIV	46103	(41)	608.92	6343012	7486246	0.012	136	160
PL/C	30249	(27)	385.43	3401107	6773895	0.012	112	220
OTHER*	19372	(17)	265.15	1102357	3006725	0.012	56	152
SIMON	3732	(3)	10.39	145334	230872	0.000	36	60
UTILITY	3634	(3)	12.18	624283	766353	0.000	168	208
WATBOL	2814	(3)	39.49	717956	806608	0.012	252	284
ASMG	1763	(2)	22.90	299151	431238	0.012	168	244
SPITBOL	1702	(2)	24.04	476322	529360	0.012	276	308
ALGOLW	1066	(1)	14.44	223074	265844	0.012	208	248
PLUTO	554	(0)	7.80	84555	124492	0.012	152	224
LISP	68	(0)	0.28	1246	4074	0.004	16	56
ASSIST	50	(0)	0.48	15651	23184	0.008	312	460
TOTAL	111107		1391.39	13441048	20448891	0.012	120	184

*SP/K, SPSSQ and SNAP

ALL TERMINALS
CLASS = *

JOB VOLUME FOR 01/12/78 - 29/12/78
(AVERAGE OVER 26 DAYS)


JOBS WHICH BEGAN EXECUTION AT INDICATED TIME
25 50 75 100 125 150 175 200 225 250 275 300 325 350 375 400 425 450 475 500
#JOBS TOD
PROCESSOR #USES %
WATFIV 46103 (41)
PL/C 30249 (27)
OTHER* 19372 (17)
SIMON 3732 (3)
UTILITY 3634 (3)
WATBOL 2814 (2)
ASMG 1763 (1)
SPITBOL 1702 (1)
ALGOLW 1066 (0)
PLUTO 554 (0)
LISP 68 (0)
SHIFT #JOBS
0 - 8 8303
8 - 16 62034
16 - 12 40070
4273 8-SERVICE FACTOR(2.0) 6-SERVICE FACTOR(1.0) 4-SERVICE FACTOR(0.6)

TOTAL JOBS AT SF 0.6 (UNAVERAGED) 0
TOTAL JOBS AT SF 1.0 (UNAVERAGED) 111107
TOTAL JOBS AT SF 2.0 (UNAVERAGED) 0
TOTAL JOBS AT ALL SF (UNAVERAGED) 111107

*SP/K, SPSSQ and SNAP

S/370-165-II RELIABILITY

The reliability statistics for December indicate an uptime percentage of 97.1 while the average number of IPL's per day reached 1.21. The scheduled hours of production for December totalled 371.

MONTHLY COMPARATIVE FIGURES

MONTH	%UPTIME	UNSCHED. IPL's/DAY
OCT/73	95.6	1.83
NOV/73	98.1	0.93
DEC/73	98.6	0.62
JAN/74	97.0	1.37
FEB/74	98.3	1.25
MAR/74	98.7	1.06
APR/74	99.3	0.52
MAY/74	99.2	0.87
JUN/74	96.1	0.75
JUL/74	91.7	1.66
AUG/74	98.3	0.86
SEP/74	94.5	1.83
OCT/74	98.6	1.07
NOV/74	98.9	0.93
DEC/74	97.1	1.21

The percentage breakdown of total system downtime for December was:

Hardware: 289 minutes (45.2%);
Software: 203 minutes (31.8%);
Other : 147 minutes (23.0%);

The major events contributing to these downtime totals were as follows:

Dec. 4,5,6,9 - A total of 56 minutes and 9 IPL's were attributed to a lack of System Queue Space which was causing the system to drop into an E04 wait. SQS was increased and the problem was rectified.

Dec. 9,10,11,12,13 - A total of 188 minutes and 11 IPL's were attributed to repeated program checks on the 3704 control unit. With the assistance of IBM software personnel, a number of Authorized Program Analysis Reports (APARS) were applied as fixes and the problem was eventually solved.

Dec.12,24 - A total of 170 minutes and 3 IPL's were attributed to storage errors in ITEL memory. Two bad cards were replaced in BSM2 by ITEL engineers.

Paul Scarborough

DOWNTIME REPORT ON S/370 FOR DEC 74

DAY	REIPL	DNTIME	REIPLS(FREQ) // DOWNTIME (MN) 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100
S 1	0	0	
M 2	0	0	
T 3	1	3	□**
W 4	3	26	□□□**********************
T 5	2	20	□□*******************
F 6	2	28	□□**************************
S 7	0	0	
S 8	1	10	□*********
M 9	4	65	□□□□**
T 10	5	76	□□□□□**
W 11	3	74	□□□**
T 12	3	50	□□□**
F 13	0	22	**********************
S 14	0	7	*******
S 15	1	10	□*********
M 16	0	0	
T 17	0	0	
W 18	2	18	□□******************
T 19	1	8	□*******
F 20	1	12	□***********
S 21	1	7	□******
S 22	0	0	
M 23	0	0	
T 24	1	160	□*** 160
W 25	(CENTER CLOSED)		
T 26	(CENTER CLOSED)		
F 27	0	0	
S 28	0	0	
S 29	0	10	**********
M 30	3	23	□□□*********************
T 31	1	10	□*********

LEGEND : ONE □ =ONE REIPL
ONE * =ONE MINUTE OF DOWNTIME

S/370 DOWNTIMES DURING DEC 74

DAY	RELOADS	DNTIME	TIME OF DAY (HOURS) 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
S 1	0	0	
M 2	0	0	
T 3	1	3	S
W 4	3	26	S S S
T 5	2	20	S S
F 6	2	28	S I S
S 7	0	0	
S 8	1	10	
M 9	4	65	I H S S H H
T 10	5	76	I S I H H H H
W 11	3	74	I I S SS SS
T 12	3	50	I O H I H
F 13	0	22	II
S 14	0	7	I
S 15	1	10	H
M 16	0	0	
T 17	0	0	
W 18	2	18	S S
T 19	1	8	S
F 20	1	12	O
S 21	1	7	S
S 22	0	0	
M 23	0	0	
T 24	1	160	HHHHHHHHHHHH
W 25	(CENTER CLOSED)		
T 26	(CENTER CLOSED)		
F 27	0	0	
S 28	0	0	
S 29	0	10	I
M 30	3	23	S S S H
T 31	1	10	

LEGEND : H FOR HARDWARE
S FOR SOFTWARE
O FOR OPERATIONAL
U FOR UNEXPLAINED
I FOR LATE IPL

STATISTICS

TOTAL SCHEDULED HOURS OF PRODUCTION : 371
TOTAL DOWNTIME (MN) : 639 , AVG/DAY : 22.03 , AVG/PROD HOUR : 0.03
TOTAL REIPL'S : 35 , AVG/DAY : 1.21
DOWNTIME RATE IS : 2.87 PERCENT OF SCHEDULED PRODUCTION HOURS

INTERACTIVE SYSTEMS RELIABILITY

The uptimes achieved for the month of December for each of APL, ATS, and CPS were 97.09%, 98.92% and 98.82% of scheduled operation, respectively. The number of scheduled hours of operation during the month of December totalled 403, while the number of unscheduled IPL's per day was 0.20. In addition to the scheduled time, APL, ATS and CPS were also available for approximately 212 hours of unattended weekend operation. The major events contributing to downtime were as follows:

Dec. 1: The APL accounting file filled up but gave no explicit message to the fact, hence it took several hours to correct this particular problem.

Dec. 13,17,18: APL file subsystem failed due to renaming changes in the internal hash number. The next time when such a file was tied, the validity check on the access matrix failed causing an EC!! Software changes were applied to correct this situation.

Dec. 17, 18: A software error in the APL scheduler caused system response to degrade and eventually abend, thus necessitating a Re-IPL. Re-configuration of terminals appears to have solved this problem.

The following table summarizes the time lost out of scheduled hours of production due to system failures for each of the systems. Six unscheduled IPL's were required as a result of the failures.

Kam Jain

DATE	DOWNTIME (mins) APL	ATS	CPS	REASON
Sun. Dec. 1	480	94	95	*APL accounting filled (SOFTWARE)
Fri. Dec. 6	6	-	-	Retrieve APL file
Wed. Dec. 11	-	3	-	I/O Error on INTCN02 (SOFTWARE
Fri. Dec. 13	11	-	-	File Subsystem EC!! (SOFTWARE)
Sat. Dec. 14	77	11	19	Late due to implementation of APL Level 4 version.
Tue. Dec. 17	13	16	17	*APL slowdown (SOFTWARE)
"	25	28	30	*APL slowdown (SOFTWARE)
"	15	-	-	File Subsystem EC!! (SOFTWARE)
Wed. Dec. 18	19	21	23	*APL slowdown (SOFTWARE)
"	26	22	22	*File Subsystem EC!! (SOFTWARE)
Thu. Dec. 19	6	-	-	I/O interrupt caused APL slow-down (SOFTWARE)
Fri. Dec. 20	6	40	43	*Re-IPL to bring up test version of Hasp.
Sat. Dec. 21	2	4	13	Late IPL due to workstation testing.
Sun. Dec. 29	18	20	22	Late IPL due to workstation testing.
Total	704	259	284	*IPL Required

System Failures December 1 to December 31, 1974

SECTION 5 ADDED TO USERBOOK

A new section has been added to USERBOOK. Section 5, prepared by the Computer Research Facility (CRF) provides information on the services available through CRF and how to use them. It includes such topics as the GT-44 System, the GT-40 System, the PDP-8/I System, and the 835-16mm Microfilm Calcomp Plotter.

Section 5 is currently at the printers. However, order forms for Section 5 will shortly be mailed out to all USERBOOK subscribers.

Krishna Patnaik

U. OF T. 'DATATALK'

U. of Toronto DATATALK services are offered by UTCC at no charge for casual enquiry and problem solving and are available to anyone within the U. of Toronto community.

If all you really need are answers, please find a phone and dial 928-6710.

APL PROGRAMMING ADVISORY AND SOFTWARE INFORMATION SERVICES

U. of Toronto DATATALK is your nearest resource for APL programming advice and APL software information.

We are prepared to offer programming advice, check syntax, investigate numerical difficulties, etc., and exchange APL programming information.

Please call U. of Toronto DATATALK at 928-6710, for an immediate answer to your query, or visit us at our office, Room 205, 49 St. Geroge St., 10 a.m.-10 p.m., Monday through Friday.

The DATATALK publications

1. "APL Transmission Codes and Dyadic I-Beams", (August, 1974)
2. "The DATATALK Pocket Guide to ΔFD/ΔWS and APL4", (January, 1975)

are available free of charge at UTCC Information Office, or telephone us and we'll mail you a copy. DIAL 928-6710.

APL SOFTWARE AND PUBLIC LIBRARY DEVELOPMENT ACTIVITIES

DATATALK services is daily writing new APL programs for immediate processing. In our own Applications Software, we are attempting to achieve accuracy, efficiency, and utility over a very wide range of scientific and engineering applications. Therefore, quite apart from improving our own capabilities for over-the-phone conversational computing, DATATALK staff is undertaking a project of rationalization, augmentation, and documentation of the software, supported and maintained by UTCC in the APL Public Libraries.

cont'd...

APL SOFTWARE AND PUBLIC LIBRARY Cont'd.

At the present time, we would appreciate receiving comments, suggestions, and questions on these plans from the APL (and prospective APL) user community.

Our plans also include development of a course on the use of APL in scientific and engineering applications.

Users with comments about any of the above activities are invited to call us at 928-6710 or write to DATATALK, UTCC, 10 King's College Rd.

Ernst Goetze

DIALOGUE: A PROBLEM OF LEAST SQUARES VS ORTHOGONAL LEAST SQUARES

DATATALK: Good afternoon, DATATALK services.
C: Hello...Jed Terrel here.
C: If you had measured experimental results and expected that there would be an essentially linear relation between them... what would you do?
D: Least squares?
C: Yes... I thought of that too. Trouble here is that I don't expect my T-values to be any better than my R-values! Do you see...?
D: You don't expect your R-values to be...
C: Right. It doesn't make sense to fit my approximate R-values to my merely approximate T-values... and claim the accuracy of a genuine least squares fit. On the other hand, I think that the T-values are at least as accurate as the corresponding R-values.
Here's how I worked it out. If I want R = A0 + A1 x T, what I should try to do here is minimize, not the sum of squares of the vertical distances to the fitted line, but the sum of squares of the orthogonal distances to the fitted line, in order to treat the R and T values essentially in the same way.
D: Right.
C: OK. To do that, I need to solve two equations, one linear and one quadratic.
D: Can you dictate those equations?
.
.
. *
.
D: All right, now let me have the data.
C: The T values are 0.13, 0.18, 0.27.... and the corresponding R values are 0.453, 0.389, 0.834....

cont'd...

DIALOGUE Cont'd.

D: Fifteen of each?
C: Yes...
D: Well... there are two roots to that quadratic...
A1 = -0.37466 and A1 = 2.66912.
C: The first one is not the right one.
What's the least squares fit?
D: The constant term is 0.08421 and A1=2.65821 in that case.
C: Right, good,... then if A1 = 2.66912, what is A0...?
D: 0.074969.
C: Fine... How do the two fits compare?
D: Well, the least squares fit will minimize after all the sum of the squares of the vertical distance to the fitted line... For the least squares fit that sum is 0.1203. For your fit, it's... 0.1207.
C: I see... and what's the sum of squares of the orthogonal distances to the fitted line?
D: Do you remember the formula?
C: Yes...It's...
D: 0.01487.
C: Sure...?
D: Yes... 0.01487.
C: Fine... Thank you very much. Would you send the details?
... Good-bye.

* The equations used are:

$\bar{R} = A0 + A1 \times \bar{T}$ and $PxA1*2 + QxA1 = P$

where $P = \sum(R-\bar{R})x(T-\bar{T})$ and $Q = \sum(T-\bar{T})*2 - \sum(R-\bar{R})*2$

Ernst Goetze

UTCC COMPUTER EQUIPMENT

SYSTEM/370 MODEL 165-II

- located in SF103/105/112
- provides General Purpose Job Stream, High Speed Job Stream and TSO services
- 3072K bytes of memory
- 1 drum
- 12 disk drives (3330)
- 8 disk drives (2314)
- 6 magnetic tape drives (4 9-track and 2 7-track)
- 6 display consoles
- 6 printers
- 5 card readers
- 1 card punch
- 8 remote batch terminals
- 1 paper tape reader
- Calcomp plotters (11" and 30")
- Gould plotter (11")
- OS/MVT with HASP

SYSTEM/360 MODEL 65

- located in McLennan Physical Laboratories
- provides Interactive Systems Service
- 1536K bytes of core
- 24 disk drives (2314)
- 2 9-track magnetic tape drives
- 1 printer
- 1 card reader
- 1 card punch
- 140 typewriter terminals
- OS/MVT with APL, ATS and CPS

7094 II

- located in Room 1203 Burton Tower
- 32K words of core
- 1 disk
- 8 magnetic tape drives
- input/output via a 1401 computer

COMPUTER RESEARCH FACILITY

- located in SF207
- DEC GT44 Systems with
  - 1 PDP-11/40 CPU
  - 2 9-track dual density tape drives
  - 1 1000 cpm card reader
  - VT17 graphics display unit
  - 1 lab. peripheral system with A/D & D/A
- DEC GT40 System with
  - 1 PDP-11/10 CPU
  - 1 2314 tape disk drive
  - 1 VT12 graphic display unit
  - 9-track/800 BPI tape drive
  - 1 Calcomp microfilm plotter
- 2 digitizing tablets
- 1 2701 data adapter with RADDTS

UTCC DIRECTORY

	ROOM	PHONE 928-
DIRECTOR		
John C. Wilson	SF143	6496
ASSOCIATE DIRECTOR		
Al Heyworth	SF116	4936
ADMINISTRATION MANAGER		
Anthony Pieterse	SF137	8948
INFORMATION OFFICE		
General Inquiries	SF128	4990 or 4991
Don Gibson	SF128A	
MANAGER, SERVICES		
Stan Yagi	49 St.Geo	7331
SUPERVISOR, MARKETING SERVICES		
Dave Scobie	49 St.Geo	
TERMINAL CO-ORDINATORS		
Sandford Fleming Terminal		
Mark Tapia	SF125	7109
Program Advisors	SF117	8599
Erindale		
Vaughan Lawrason		828-5311
Scarborough		
Ralph Lombardi		284-3173
Arts and Science		
Marlene Domoney	SS2105	6509
Management Studies		
Paul Roth		4917
CAL CO-ORDINATOR		
Ford Clancy	49 St.Geo	6021
MANAGER, SUPPORT SERVICES		
Joyce Walton	49 St.Geo	
MANAGER, OPERATIONS		
Derry Cox	SF113	7092
MANAGER, SYSTEMS		
Rein Mikkor	SF113	5058
SYSTEM HARDWARE SUPERVISOR		
Eugene Siciunas	SF113	4967
MANAGER, 7094 SERVICES		
Joyce Walton	49 St.Geo	
MANAGER, COMPUTER RESEARCH FACILITY		
Dennis Smith	SF214B	4086
CONTRACT PROGRAMMING		
Bill Greene	SF214C	2694
AUTHORIZATION CLERKS		
Yvonne Bowen (APL, ATS)	SF139	8703
Barbara Ablett (GPJS, TSO)	SF139	5557
Krishna Patnaik (CRF)	SF207	8858
Supervisor (7094)	NP1207	7094

JOB AND SYSTEM STATUS QUERIES

SYSTEM/370, TSO	7373
ATS/APL	6234
7094	7094
2741 TERMINAL MALFUNCTIONS	7107
029 KEYPUNCH MALFUNCTIONS	6465

SERVICES

	DIAL-UP	ADVICE
APL	7200	6710
ATS	7100	7107
TSO - 2741	7303	8599
TSO - TTY (10 cps)	7390	8599
TSO - TTY (30 cps)	7386	8599
DATATALK	6710	6710

Registration for Computer Centre
Non-credit Short Courses

NAME _____
(FIRST) (LAST)

Mailing address **including city or borough**. If you have a university address please use it. (Please be sure that you are known at the address you give — we have received numerous undeliverable rejects in the past).

_____

_____

_____

DEPARTMENT _____

OR MAJOR COURSE _____ PHONE _____

Please enroll me in: (circle number)

C6. UTILITIES
C7. MARK IV
C8. JCL (3 - 4 p.m.)
C9. JCL (6 - 7:30 p.m.)
C10. SPSS
C11. COURSVAL

Confirmation of course(s) will be sent to the above address along with the room number in which the course will meet.

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Education Schedule
Computer Centre
Room 128
Sir Sandford Fleming Lab.
University of Toronto
TORONTO, Ontario
M5S 1A1